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A New Species of *Heteromysis* (Crustacea: Mysidacea) from a ‘Blue Hole’ in the Bahamas

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A new species of *Heteromysis* is described from a blue hole on Grand Bahama Island. It is distinguished by having a single inner spine on the uropod endopod, 9 to 10 uniformly distributed spines on the lateral margins of the telson, and spination of the whole distal emargination of the telson. Modified setae distally on the third segment of the peduncle of the first antenna, as characteristic of the subgenus *Olivaemysis*, are present only in the female, while the male pleopods are typical of the subgenus *Heteromysis*.

Key Words: *Heteromysis*, Bahamas, blue hole.

Introduction

The genus *Heteromysis* comprises mysids of apparently passive habit, often associated with sponges or similar sessile epifauna. As a result, the genus is diverse, with localized speciation seeming to be the norm. Specimens of a mysid, collected while diving, from a marine cave (tidal creek ‘blue hole’) on Grand Bahama Island, West Indies, proved to be of a hitherto undescribed species of *Heteromysis*. The species is described herein based on adult specimens of both genders.

The material has been deposited at The Natural History Museum, London.

Order Mysidacea

Family Mysidae

Tribe Heteromysini

Genus *Heteromysis* S. I. Smith, 1873

Heteromysis cyanogoleus sp. nov.

(Figs 1-3)

Material. One brooding female, body length 3.8 mm, holotype (Registration No. NHM.1999.1291), one male, body length 2.6 mm, allotype (Registration No. NHM.1999.1292), one brooding female (4.3 mm) and one juvenile (2.5 mm), paratypes (Registration Nos NHM.1999.1293-1294), Sandy’s Cave, east end of Grand Bahama Island, West Indies (*ca* 27°N, 78°W), 6 May 1984; coll. D. Williams (depth and substratum unknown).

Description of female holotype. Rostrum prominent, pointed; posterior margin of carapace dorsally emarginate. Eyestalk round (‘globular’), without process; cornea small, pigmented, distal to eyestalk but distolateral to carapace (Fig. 1C).

First antenna (Fig. 1A) with third peduncle article obliquely set on article 2,

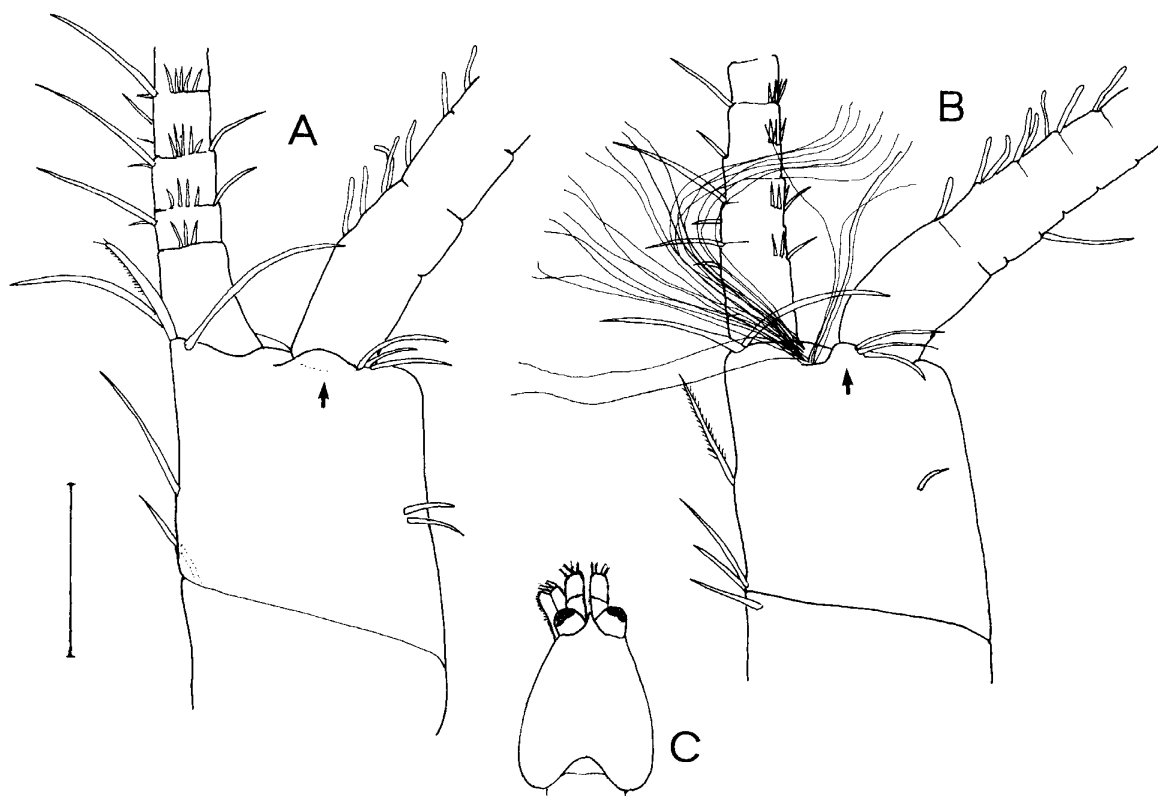


Fig. 1. *Heteromysis cyanogoleus* sp. nov., distal peduncle of first antenna, A: female holotype; B: male allotype, C, cephalon of holotype, dorsal. Arrows on A and B indicate small lobe between flagella bases. Scale line=0.1 mm for A and B, 1.7 mm for C.

former with three distomedial setae, one elongate and extended laterally, one blunt, medially finely setose and with paired flagellate distal setules; 3 distolateral setae; small lobe between typically elongate flagella.

Second antennal scale (Fig. 2C) 3.3 times as long as wide, setose all round, no evidence of distal suture; two distal peduncle articles not reaching tip of scale, 2nd of these articles half length of first.

Mandibular palp (Fig. 3A) with second and third articles bearing plumose setae as figured, 3rd article elongate with inferior row of 10 short and one long simple setae.

Third thoracic endopod (Fig. 2A) with ischium anaxial with basis, ischium bearing simple inner setae and long outer distal spiniform seta; merus over 4 times as long as wide, with single outer spiniform seta near distal edge, inner edge with 4 broad flagellate setae from proximal end overlapping row of 5 'shouldered' tapering setae, all interspersed with 3 or 4 short simple setae. Carpopropodus medially swollen, 4 times as long as wide, with row of outer simple and tapering setae, medial inner rows of simple and flagellate setae, inner distal corner with 3 stout spines and 3 simple setae proximal to flattened blade-like apophysis; dactylus with claw as long as maximum width of carpopropodus, bearing 4 short and 3 long simple setae.

Fourth thoracic endopod (Fig. 2B) with elongate ischium bearing simple lateral setae; merus 0.62 as long as ischium with simple inner setae; carpopropodus

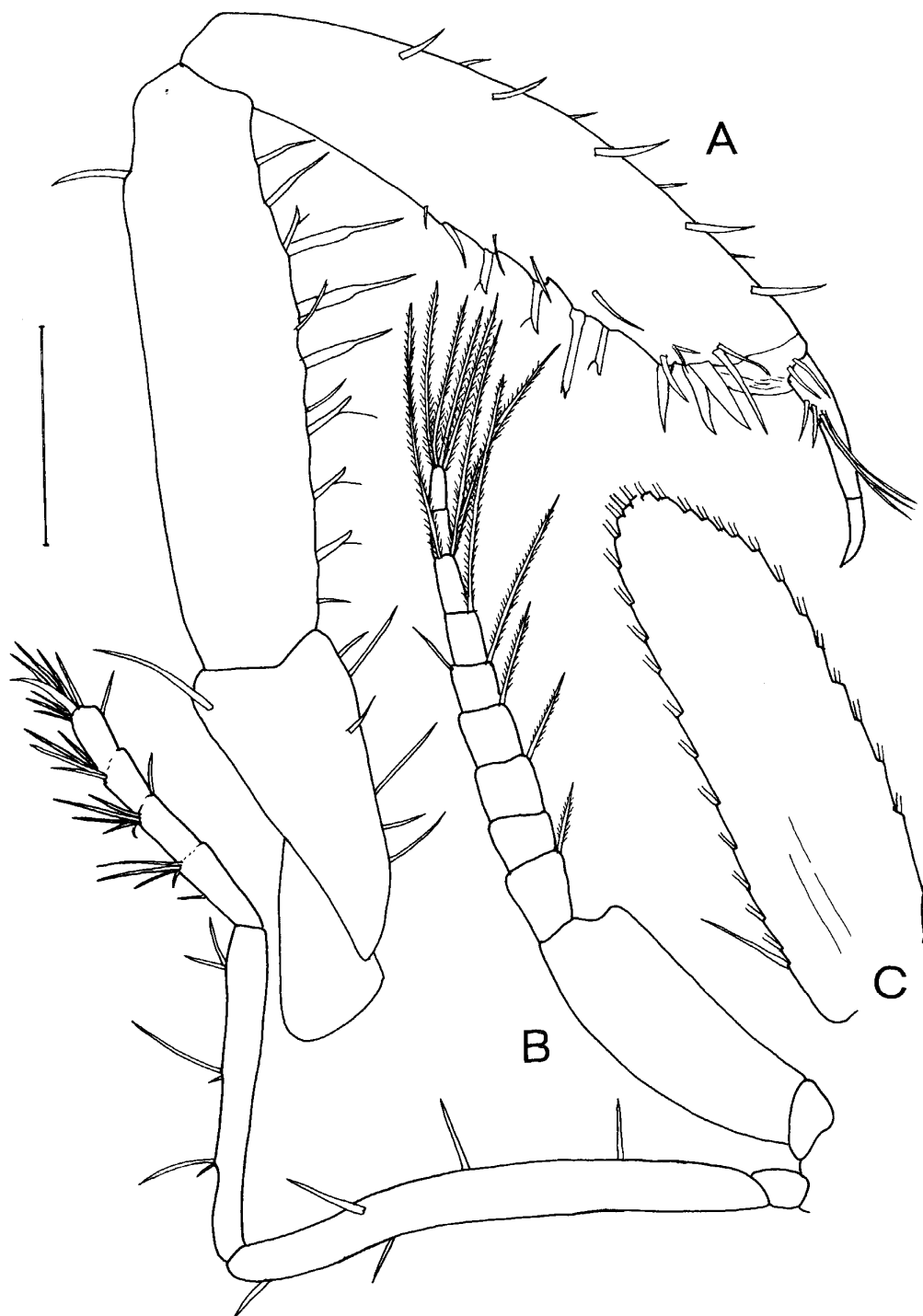


Fig. 2. *Heteromysis cyanogoleus* sp. nov., holotype female: A, 3rd right thoracic endopod; B, 4th right thoracic endopod (below) and exopod (above); C, antennal scale, most setae cut short. Scale line=0.1 mm for A and B, 0.2 mm for C.

0.9 times as long as merus, of 4 segments, each with distal brush of setae; dactylus as long as last carpopropodal segment. Exopodal proximal article flattened, slender; distal articles subequal with plumose outer setae. Fifth to eighth thoracic limbs similar, carpopropodus of 5 articles, proximal article twice as long as others.

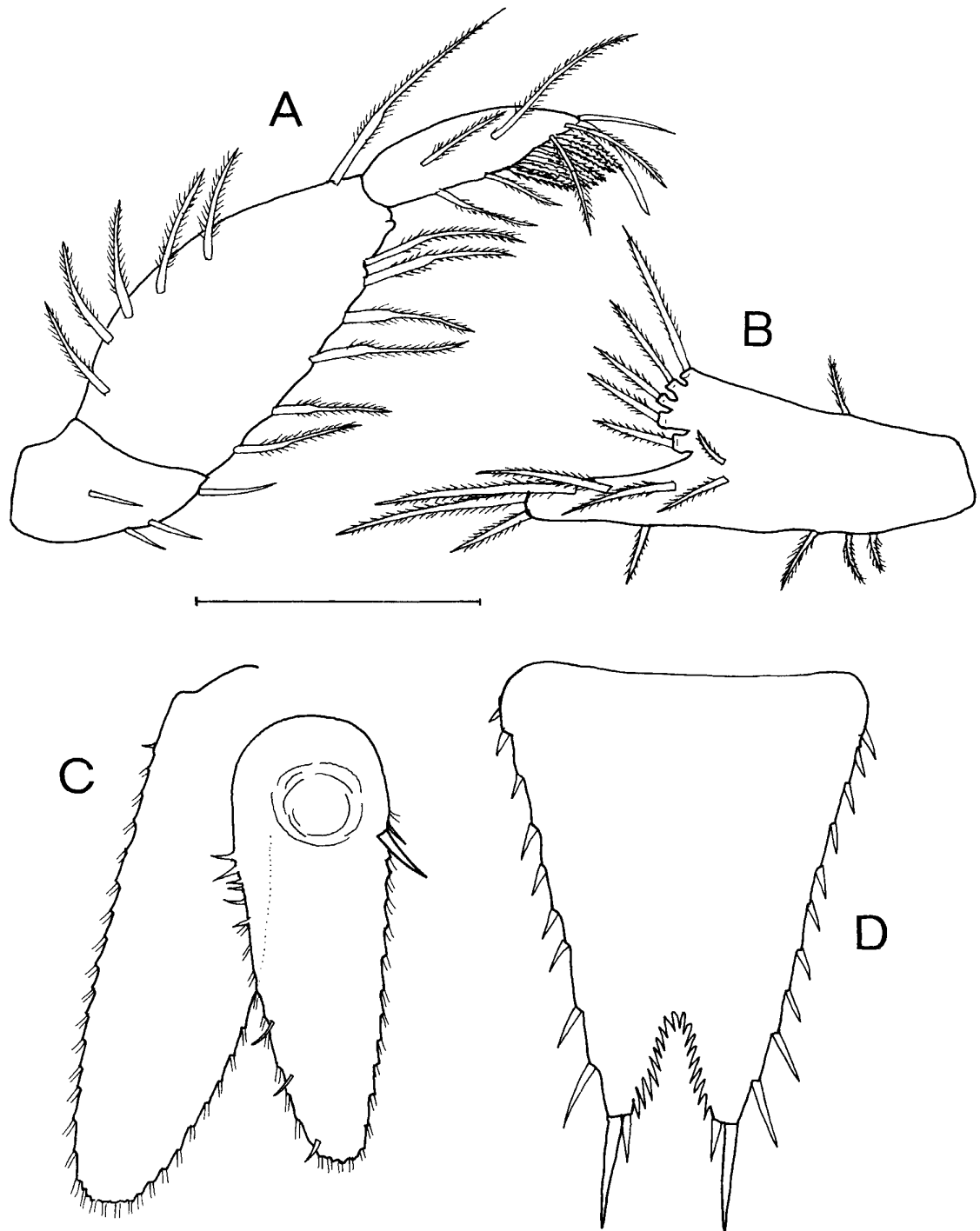


Fig. 3. *Heteromysis cyanogoleus* sp. nov. (A, C, and D, holotype female; B, allotype male): A, mandibular palp; B, 4th male pleopod; C, uropods, most setae cut short; D, telson. Scale line= 0.18 mm for A and B, 0.3 mm for C and D.

Pleopods typical (as in male, see Fig. 3B), without flagellate setae or spines, uniramous and single-articled, 3 to 5 setae on postbranchial lobe, row of 4 to 5 inner setae on apical lobe.

Uropodal exopod 1.1 times as long as endopod (Fig. 3C), endopod with statocyst

and small spines on outer margin and single large inner spine adjacent to statocyst.

Telson (Fig. 3D) as long as uropodal endopod, with apical cleft lined with 18 uniform spines, distal lobes with large outer and short inner spines, lateral margins with 9 or 10 spines along entire edge, spines approximately equidistant and increasing in size distally.

Description of male allotype. Generally similar to female, smaller. First antenna with third peduncle article (Fig. 1B) obliquely set on article 2, distomedially bearing 2 setae, these elongate and extended laterally in opposite directions, but no blunt, setose, flagellated seta; 3 distolateral setae on third article, and small lobe between typically elongate flagella, bearing dense brush of 25 or more fine setae. Pleopods (Fig. 3B) not dimorphic.

Etymology. Latinized from the Greek, *kyanos*-blue and *goleos*-hole.

Discussion

There are seven described species of *Heteromysis* with a single inner spine on the uropod endopod, including *H. nouveli* Brattegard, 1969 from the Bahamian region, of which none has nine or 10 uniformly spaced marginal spines on the telson, together with a fully spinose apical telson cleft. Modlin (1984) gave a key to the species of Heteromysini from the western Atlantic, from among which *H. cyanogoleus* sp. nov. comes closest to *H. guitarti* Băcescu, 1968, but the latter species (also recorded from caves, in Bermuda; see below) has dimorphic male pleopods and five to six inner spines on the uropod endopod. The elongate carpopropodus of the present species is distinct, although the spination shows some similarity to that of *H. bermudensis* Sars, 1885 (11 to 13 inner uropod endopod spines).

Băcescu (1968; 1976) divided the genus *Heteromysis* into four subgenera. *Neoheteromysis* is characterized by two elongate spines on the third and fourth pleopods of both sexes, while *Gnathomysis* is characterized by its modified third thoracic limb, with an inflated carpopropodus and a denticulate apophysis on the ischium. *Olivaemysis* is distinguished from the nominate subgenus *Heteromysis* by having modified setae (flattened and flagellated) on the inner distal angle of the third segment of the peduncle of the first antenna, while certain of the male pleopods are distally dimorphic and lacking sternal apophyses.

The present species, without the elongate pleopodal spines of *Neoheteromysis* or the greatly expanded third thoracic limb of *Gnathomysis*, falls between the characters of the last two subgenera. Thus the female (but not the male) has modified setae on the third segment of the peduncle of the first antenna, as in *H. (Olivaemysis)*, but the male does not have dimorphic pleopods with a serrated distal edge of the apical lobe, thus according with *H. (Heteromysis)*. Although no other species of the genus appears to have been described as showing sexual dimorphism in the presence or absence of the flagellated first antennal peduncle seta, a number of species are known from one gender only. Accordingly, *H. cyanogoleus* has not been assigned to a subgenus.

In addition to the peculiar stygiobiont genus *Stygiomysis* (e.g. Bowman *et al.* 1984) and the apparently Bermuda-endemic genera *Bermudamysis* and *Platyops*

(see Băcescu and Iliffe 1986), a number of heteromysids have been recorded from marine caves in the western Atlantic region, including *Heteromysis bermudensis* and *H. guitarti* (Băcescu and Iliffe 1986), as well as a species of the related genus *Heteromysoides*, *H. dennisi* Bowman, 1985, from Cemetery Cave, another blue hole on Grand Bahama Island (Bowman 1985).

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